

APPLICANTS: NUNES RAMOS DE CARVALHO,
Bruno Manuel
SERIAL NO.: To Be Assigned
FILED: Herewith
Page 2

Amendments to the Specification:

On page 1, immediately after the title, please insert:

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PRIOR APPLICATION DATA

The present application is a national phase application of International Application PCT/PT2004/000024, entitled "AUTONOMOUS GARMENT WITH ACTIVE THERMAL CONTROL AND POWERED BY SOLAR CELLS" filed on October 13, 2004, which in turn claims priority from Portuguese application PT103030, filed on October 17, 2003, all of which are incorporated by reference in their entirety.

FIELD OF THE INVENTION

This invention is included in the apparel segment, namely in the emerging sector known as intelligent wear (i-wear). It is related with systems and methods for automatic control of temperature in garments, not only for standard weather conditions but also for extreme environments. Furthermore, this invention also refers to special elements that provide power for those vests.

BACKGROUND OF THE INVENTION --

On page 2, please delete the section:

-- Field of the invention

This invention is included in the apparel segment, namely in the emerging sector known as intelligent wear (i-wear). It is related with systems and methods for automatic control of temperature in garments, not only for standard weather conditions but also for extreme environments. Furthermore, this invention also refers to special elements that provide power for those vests.

Background --

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On page 11, please replace:

-- Detailed description of the invention --

with:

-- BRIEF DESCRIPTION OF THE DRAWINGS --

On page 11, after the paragraph: "Fig.2 shows, as an example, a clothing uniform with the illustration of solar cells on the surface.", please insert:

-- DETAILED DESCRIPTION OF THE INVENTION--

Please replace the fourth paragraph on page 11 with:

-- In a simple configuration, the system includes one or several pieces of clothing, solar cells (1), batteries (2), resistor circuits (3), refrigeration units (4), and an automatic thermal controller (6). ~~Alternatively or together with the resistors and cooling units use Peltier cells (5), which can be used for heating and cooling. The system may include not only resistors and cooling units but also Peltier cells (5), which can be used for heating or cooling the garment.~~ As Peltier cells are able to produce or remove heat in the same unit just by changing the current direction on the cell, garment versatility can be increased. The solar cells convert electromagnetic radiation in electric power, which is used to feed the electric devices. The distribution of resistors and refrigerating pipes (7) is adjusted according to human body needs, in order to produce or remove heat in the garment. The thermal unit assures that temperature inside the garment is maintained in the selected range, which can be function of metabolic activity, weather conditions, breathable fabrics properties, and pre-selected values defined by the user. Furthermore, a specific algorithm surveys the thermal control unit and manages heating and cooling production in the garment. The batteries have two different purposes in the system. On one hand, they are used to stabilize power consumption if there is a strong

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variation in the electric power production. On the other hand, the batteries are used to store energy and provide extra power to increase autonomy, namely when radiation level is low or no longer available. --